metabolism in pts with acute MI who underwent primary angioplasty with DP. **Methods:** Consecutive pts (n=61, mean age=63) with primary angioplasty (DP: n=15, non-DP: n=46) for acute MI underwent at rest myocardial Tl-201 and I-123 BMIPP (free fatty acid analogue) SPECT imaging 9 days from onset of MI. Images were scored using a 18-segment model and a 0-4 scale, and then defect score of I-123 BMIPP, Tl-201 and mismatch score between I-123 BMIPP and Tl-201 were calculated. **Results:** There was no significant difference in BMIPP defect score (area at risk) between DP and non-DP group. However, Tl-201 defect score was significantly lower in pts with DP and mismatch score was significantly higher in pts with DP as shown in a table. These suggest that myocardial perfusion was more improved in pts with DP and myocardium can be more salvaged in pts with DP compared with pts without DP. **Conclusion:** Primary angioplasty with DP is more effective for myocardial reperfusion in pts with acute MI.

Effects of thrombectomy plus distal protection

	Thrombectomy plus distal protection	Balloon and/ or stent use only	P value
BMIPP defect score	17.6	16.0	0.5
Tl defect score	4.3	11.5	0.002
Mismatch score between BMIPP&Tl	13.3	4.5	<0.0001

1094-157 High-Dose Dobutamine Stress Tl-201/I123-BMIPP Dual SPECT Reliably Identifies Myocardial Contractile Dysfunction Caused by Inducible Demand Ischemia

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Myocardial fatty acid metabolism is so susceptible to transient myocardial ischemia that impaired fatty acid metabolism is persistent even after recovery from perfusion abnormality. We hypothesized that stress myocardial fatty acid imaging can identify contractile dysfunction induced by transient ischemia, including demand ischemia, more precisely than does stress perfusion imaging. To test this hypothesis, hallium-201 (Tl)/I-123-beta-methyl iodophenylpentadecanoic acid (BMIPP) dual SPECT (DDS) and two-dimensional echocardiography (DSE) were performed simultaneously using a high-dose dobutamine in 22 patients with stable coronary artery disease who had significant coronary artery stenosis (61±9 years, 16 males, 6 females). DDS and DSE images were obtained 20 min (stress-BMIPP, Tl) and 4 hours (rest- BMIPP, Tl) after intravenous infusion of dobutamine at increments of 5, 10, 15, 20, 30, 40 μg/kg/min with a 3 min-interval. Reduced myocardial uptake of Tl or BMIPP was quantified using a polar map technique as a severity score (SS). Regional wall motion abnormality (WMA) was evaluated semiquantitatively at rest, low-dose (15μg/kg/min), and high-dose (40 μg/kg/min) dobutamine infusions. Stress-BMIPP SS was significantly greater than stress-Tl SS (200.8±98.4 vs. 176.4±88.2, p=0.039). At a high-dose test, stress-BMIPP SS correlated more clearly with WMA (y=0.04x-2.33, r=0.58, p=0.0036) than did stress-Tl SS (y=0.03x-0.24, r=0.45, p=0.041). At a low-dose test, however, rest-Tl SS and rest-BMIPP SS correlated significantly but equally with WMA: y=0.03x-1.33, r=0.55, p=0.0096; and y=0.03x-1.11, r=0.53, p=0.0134, respectively. Thus, high-dose dobutamine-induced impairment of myocardial fatty acid uptake can identify not only reversible ischemia identified by standard perfusion imaging but also transient contractile dysfunction that is underestimated by stress perfusion imaging. Stress-induced transient impairment of contractile function and fatty acid metabolism may reflect imbalance between increased demands and coronary flow reserve rather than relative abnormality of tracer distribution in myocardium.

1094-158 Altered Myocardial Perfusion With Fatty Meal Ingestion in Normal Volunteers

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Background: Fatty meal ingestion causes endothelial dysfunction of the brachial artery in normal volunteers.. However, the effects on myocardial perfusion are not known .
Methods: 35 healthy volunteers with no cardiac risk factors were evaluated with rest and stress PET Rb-82 myocardial perfusion dynamic imaging 3 to 4 hours following ingestion of high and low fat meals in random order. Net retention (/min) was used as an index of perfusion. Stress testing included dobutamine (n=15), dipyridamole (n=10) and cold pressor (n=10). The first 15 volunteers underwent brachial artery ultrasound studies before and 3 to 4 hours after the low and high-fat meals. The high fat meal consisted of 926 calories and 52.8 g of total fat. The low fat meal consisted of 923 calories and 0.6 g of total fat.
Results: Flow mediated vasodilatation was impaired after the high fat meal compared to baseline (6.1 +/- 2.4% vs 10.5 +/- 2.7%, p=0.00006), but not after low fat (9.60 +/- 1.3 % vs 10.5 +/- 2.7%, NS). Triglycerides (mmol/L) increased after the high fat meal compared to baseline (1.92 +/- 1.31 vs 1.14 +/- 0.79, p=0.0001) but not after low fat meal (1.27 +/- 1.02 vs 1.27 +/- 1.15, NS). Average left ventricular perfusion at rest and following dobutamine, dipyridamole or cold pressor stress did not differ after high versus low fat meals. However, regional perfusion following cold pressor stress decreased after high versus low fat meal ingestion by 5.1% (p=0.04) in the middle myocardial segments and by 7.0% (p= 0.003) in the apical segments with no significant changes in the basal segments. No significant regional changes were observed with dobutamine or dipyridamole stress.
Conclusions: Fatty meal ingestion results in endothelial dysfunction of the brachial artery and alterations in myocardial perfusion following cold pressor in normal volunteers. The reduced perfusion in the middle and distal segments following cold pressor is consistent with the development of a myocardial perfusion gradient (from base to apex) and endothelial dysfunction within the coronary circulation. Cold pressor appears to be superior to dobutamine or dipyridamole stress for evaluation of endothelial function with PET perfusion imaging.

1094-159 Prognostic Value of Rubidium-82 Perfusion Positron Emission Tomography: Preliminary Results From the Consecutive 153 Patients

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Background: The utility of positron emission tomography (PET) myocardial perfusion imaging (MPI) in the diagnosis of coronary artery disease (CAD) is well established. However, limited data exists on the prognostic value of PET MPI. The purpose of this study was to evaluate prognostic value of Rubidium-82 PET for prediction of cardiac events including cardiac death, myocardial infarction (MI), revascularization and cardiac hospitalization. **Methods:** We studied 153 consecutive patients who underwent dipyridamole stress/rest Rubidium-82 PET and were followed for 3.0±0.93 year. A 17 segments model, 5 points scale (0=normal, 4=absent uptake) was used to evaluate summed stress (SSS), rest and difference scores. Patients were divided into 4 groups based on SSS; Normal (SSS<4) , Mild (4-7), Moderate (8-11) and Severe (≥12). Log-rank test was performed for survival analysis. **Results:** During follow up period, 32 events occurred: major events were 9 (5 cardiac death (3%) and 4 MI (3 %)) and minor events were 23 (15 revascularization (10%) and 8 hospitalization (5%)). Events are shown in the table. Normal scans had a 94% event-free survival, compared with 62% in patients with mild, 58% with moderate, and 45% with severe defects (p<0.001). **Conclusion:** Rubidium-82 PET MPI has significant prognostic value for predicting cardiac events including cardiac death. The prognostic value of PET MPI will add to its utility in evaluation of patients with CAD.

Events and Scan Result

	N	Death	Death and MI	All Events
Normal	95	0 (0%)	0 (0%)	6 (6%)
Mild	24	1 (4%)	1 (4%)	9 (38%)
Moderate	12	1 (8%)	2 (17%)	5 (42%)
Severe	22	3 (14%)	6 (27%)	12 (55%)
Log-rank p value		0.003	< 0.001	< 0.001

1094-160 Prognostic Significance of Dipyridamole-Induced ST-Segment Depression in Patients With Normal Rubidium-82 Positron Emission Tomography Perfusion Images

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Background: The presence of dipyridamole induced ST-segment depression increases the specificity of single photon emission computed tomography (SPECT) imaging. Recently it has been demonstrated that patients, with vasodilator induced ST-segment depression and a normal technetium-99m (Tc-99m) SPECT perfusion image, have a high cardiac event rate. Positron emission tomography (PET) myocardial perfusion imaging is considered to have greater accuracy than SPECT. We examined the prognostic significance of ST-segment depression with dipyridamole stress in patients with a normal rubidium-82 (Rb-82) PET scan.
Methods: We performed a retrospective chart review all patients (2020) who had dipyridamole stress Rb-82 PET at the University of Ottawa Heart Institute between 1998-2003. Exclusion criteria included left bundle branch block and paced rhythms. **Results:** 345 (17.1%) patients had ischemic changes with dipyridamole stress. Of these, 80 (4.0%) patients had abnormal dipyridamole ECGs and normal Rb-82 PET perfusion scans. Follow-up data was available for 74 patients (mean age 59.0 ± 10.8 years, 66 (86.8%) women) and were compared to 246 (mean age 61.6 ± 12.1, 163 (66%) women) patients with normal dipyridamole ECGs and Rb-82 PET perfusion scans. During follow up of 23 ± 11 months, there were no significant differences in cardiac death (0% vs 0%), non-fatal MI (1.4% vs 0%) or revascularization (4.1% vs 0.8%). However, patients with dipyridamole induced ST-segment depression had a higher combined cardiac event rate of: cardiac death, non-fatal MI and revascularization (5.4% vs 0.8%, p=0.02).
Conclusion: Patients with dipyridamole induced ST-segment depression and a normal Rb-82 PET perfusion scan, have a low event rate. This is lower than similar studies performed using Tc99m SPECT. This suggests that the prognosis for a patient with a normal Rb-82 PET scan is good regardless of ECG changes.